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TAROLLI, SUNDHEIM, COVELL & TUMMINO L.L.P. 1300 EAST NINTH STREET, SUITE 1700 CLEVEVLAND, OH 44114			GARCIA, ERNESTO	
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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/047,534
Filing Date: January 15, 2002
Appellant(s): URBACH, BRIAN A.

Thomas L. Tarolli
For Appellant

EXAMINER'S ANSWER

MAILED

MAR 22 2006

GROUP 3600

This is in response to the appeal brief filed December 27, 2005 appealing from the
Office action mailed November 15, 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows:

Item 1: No change.

Item 2: The rejection of claims 1-8, and 10-12 as being obvious under 35 U.S.C. §103 over Stroh, in view of Sommerer and Greubel et al.

Item 3: Combined with item 2 due to the same references.

Item 4: No change.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,257,795	STROH	7-2001
5,062,655	SOMMERER	11-1991
6,416,135	GREUBEL et al.	7-2002
6,505,989	PAZDIREK et al.	1-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 1, the new limitation "said first frustoconical surface being angled so that imaginary lines, extending from diametrically opposite portions of the first frustoconical surface, intersect at a first location within said through hole and between the first and second side surfaces" in lines 9-14 and "said second frustoconical surface being angled so that imaginary lines extend from diametrically opposite portions of said second frustoconical surface intersect a second location within said through hole and between said first and second side surfaces" in lines 14-18 have no support in the specification or the drawings. Appellant cannot rely on the figures because the figures are not to scale. Since the drawings are not to scale, the plate could be as small, thus the imaginary lines will intersect outside the through hole. Furthermore, since the angle of the frustoconical surface varies according to page 4, lines 19-21, and page 5, lines 6-7, of the specification, the imaginary lines will not intersect within the through hole. Thus, the subject matter added has no concrete support in the application. Also the new subject matter "said third frustoconical surface being angled so that, when in engagement with said first frustoconical surface, imaginary lines extend from diametrically opposite portions of said third frustoconical surface intersect at a third location within said through hole of said second suspension member and between said first side surface and the second side surface" in lines 34-39 is not supported in the specification. The new matter rejection also applies to the fourth frustoconical surface in lines 43-49.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5-8, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stroh, 6,257,795 (see marked-up attachment), in view of Sommerer, 5,062,655 (see marked-up attachment) and Greubel et al, 6,416,135.

Regarding claim 1, Stroh discloses, in Figure 3, an apparatus comprising a first suspension member **1**, a second suspension member **2**, a socket **A8**, a one-piece stud **10**, and a fastener **11**. The second suspension member **2** has a first side surface **A30**, a second side surface **A31** opposite the first side surface **A30**, and a through hole **8** extends between the first side surface **A30** and the second side surface **A31**. A first surface **13** defines a first end **A5** and a second surface **15** defines a second end **A7** of the through hole **8**.

The first surface **13** is angled so that imaginary lines, extending from diametrically opposite portions of the first surface **13**, intersect at a first location within the through hole **8** and between the first side surface **A30** and second side surface **A31**.

The second surface **15** is angled so that imaginary lines, extending from diametrically opposite portions of the second surface **15**, intersect a second location within the through hole **8** and between the first side surface **A30** and the second side surface **A31**.

A cylindrical surface **A21** is interposed between the first surface **13** and the second surface **15** and defines a central portion **A22** of the through hole **8**.

The socket **A8** is connected with the first suspension member **1**. The stud **10** has a first end portion **A10** and a second end portion **7**. The socket **A8** supports the first end portion **A10** in the socket **A8**. The second end portion **7** projects from the socket **A8** and completely through the through hole **8**. The second end portion **7** has a third surface **12** in engagement with the first surface **13**. The fastener **11** is secured to the second end portion **7**. The fastener **11** has a fourth surface **15** in engagement with the second surface **15** of the second suspension member **2**. The second end portion **7** extends completely through the fastener **11**.

The third surface **12** is angled so that, when in engagement with the first surface **13**, imaginary lines, extending from diametrically opposite portions of the third surface **12**, intersect at a third location within the through hole **8** and between the first side surface **A30** and second side surface **A31**. The fourth surface **14** is angled so that, when in engagement with the second surface **15**, imaginary lines, extending from diametrically opposite portions of the second surface **14**, intersect a fourth location

within the through hole **8** and between the first side surface **A30** and the second side surface **A31**.

The socket **A8** and the stud **10** support the first suspension member **1**. The fastener **11** causes the first surface **13** and the third surface **12** to be pressed together, and the second surface **15** and the fourth surface **15** to be pressed together to secure the second suspension member **2** relative to the second end portion **7** of the stud **10**.

However, Stroh fails to disclose the first surface **13**, the second surface **15**, the third surface **12**, and the fourth surface **15** being frustoconical. Sommerer teaches, in Figure 2, a first surface **B1**, a second surface **B2**, a third surface **B3**, and a fourth surface **B4** being frustoconical. Sommerer does not explicitly explain why the surfaces are frustoconical. It appears that frustoconical surfaces are an alternative configuration for mating and aligning parts together. Appellant is urged to view Greubel et al. for support of choosing the surface to be spherical or frustoconical (col. 3, line 61 - col. 4, line 10). Therefore, as taught by Sommerer and Greubel et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the surfaces frustoconical to mate and align parts together.

Regarding claim 5, as modified above, the fastener **11** is a nut and the second end portion **7** of the stud **10** has a threaded end portion (col. 2, lines 47-49). The

threaded end portion 7 extends to a shoulder A32 that forms an end of the third frustoconical surface 12.

Regarding claims 6 and 8, the second end portion 7 of the stud 10 has a cylindrical portion A24 extending from the third surface 12 of the stud 10 in a direction away from the first end portion A10 of the stud 10. The cylindrical portion A24 has a diameter A25 smaller than a smallest diameter A26 of the third surface 12 of the stud 10. The cylindrical portion A24 of the second end portion 7 of the stud 10 is spaced away from and extends parallel to the cylindrical surface A21 of the second suspension member 2 when the cylindrical surface A21 is in abutting engagement with the first surface 13. The cylindrical surface A21 of the second end portion 7 includes external threads extending axially to the third frustoconical surface 12.

Regarding claim 7, the stud 10 has a longitudinal central axis A15 on which the third surface 12 is centered. The third surface 12 of the stud 10 extends at a first angle A23 to the central axis A15. The first surface 13 and the second surface 15 of the second suspension member 2 extend at the first angle A23 relative to the central axis A15. The fourth surface 15 extends at the first angle A23 to the central axis A15 when the fastener 11 is secured to the second end portion 7 of the stud 10. The fastener 11 is a nut and the second end portion 7 of the stud 10 has a threaded end portion (col. 2, lines 47-49).

Regarding claim 10, as modified above, the first surface **13** and the cylindrical surface **A21** converge with one another in the through hole **8** the second suspension member **2**. The second surface **15** and the cylindrical surface **A21** converge with one another in the through hole **8** in the second suspension member **2**.

Regarding claim 11, as modified above, the cylindrical surface **A21** extends from the first surface **15** to the second surface **15** so that the first surface **13**, the second surface **15** and the cylindrical surface **A21** entirely form the through hole **8** in the second suspension member **2**.

Regarding claim 12, the first location and the third location within the through hole are identical locations. The second location and the fourth location are identical locations.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stroh, 6,257,795, in view of Sommerer, 5,062,655 (see marked-up attachment) and Greubel et al, 6,416,135, as applied to claims 1-8 and 10-12, and further in view of Pazdirek et al., 6,505,989.

Regarding claim 9, Stroh, as discussed above, discloses the second end portion **7** of the stud **10** includes a terminal end **A27**. The terminal end **A27** is located on a side **A28** of the fastener **11** opposite the first end portion **A10** when the fastener **11** is

secured to the second end portion **7** of the stud **10**. However, Stroh fails to disclose the terminal end **A27** having a hexagonal configuration. Pazdirek et al. teach in Figure 2 a terminal end having a hexagonal configuration (see Fig. 1 from the top view). Pazdirek et al. do not elaborate on this feature. It appears however, that the hexagonal configuration prevents the stud from being rotated in a through hole when a fastener is fastened to a threaded portion of the stud. Therefore, as taught by Pazdirek et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the terminal end have the hexagonal configuration to prevent the stud from slipping in the through hole when the fastener is fastened to the stud.

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stroh, 6,257,795 (see marked-up attachment), in view of Sommerer, 5,062,655 (see marked-up attachment) and Greubel et al, 6,416,135.

Regarding claim 2, Stroh discloses, in Figure 3, an apparatus comprising a first suspension member **1**, a second suspension member **2**, a socket **A8**, a one-piece stud **10**, and a fastener **11**. The second suspension member **2** has a through hole **8** with a first surface **13** and a second surface **15**. The first surface **13** defines a first end **A5** of the through hole **8** and the second surface **15** defines a second end **A7** of the through hole **8**. The first surface **13** and the second surface **15** converge toward a center **A20** of the second suspension member **2**. A cylindrical surface **A21** is interposed between the

first surface **13** and the second surface **15** and defines a central portion **A22** of the through hole **8**.

The socket **A8** is connected with the first suspension member **1**. The stud **10** has a first end portion **A10** and a second end portion **7**. The socket **A8** supports the first end portion **A10** in the socket **A8**. The second end portion **7** projects from the socket **A8** and completely through the through hole **8**. The second end portion **7** has a third surface **12** in engagement with the first surface **13**. The fastener **11** is secured to the second end portion **7**. The fastener **11** has a fourth surface **15** in engagement with the second surface **15** of the second suspension member **2**. The second end portion **7** extends completely through the fastener **11**.

The socket **A8** and the stud **10** support the first suspension member **1**. The fastener **11** causes the first surface **13** and the third surface **12** to be pressed together, and the second surface **15** and the fourth surface **15** to be pressed together to secure the second suspension member **2** relative to the second end portion **7** of the stud **10**.

However, Stroh fails to disclose the first surface **13**, the second surface **15**, the third surface **12**, and the fourth surface **15** being frustoconical. Sommerer teaches, in Figure 2, a first surface **B1**, a second surface **B2**, a third surface **B3**, and a fourth surface **B4** being frustoconical. Sommerer does not explicitly explain why the surfaces are frustoconical. It appears that frustoconical surfaces are an alternative configuration

for mating and aligning parts together. Appellant is urged to view Greubel et al. for support of choosing the surface to be spherical or frustoconical (col. 3, line 61 - col. 4. line 10). Therefore, as taught by Sommerer and Greubel et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the surfaces frustoconical to mate and align parts together.

Furthermore, as modified above, the stud **10** has a longitudinal central axis **A15** on which the third frustoconical surface **12** is centered. The third frustoconical surface **12** of the stud **10** extends at a first angle **A23** to the central axis **A15**. The first frustoconical surface **13** and the second frustoconical surface **15** of the second suspension member **2** extend at the first angle **A23** relative to the central axis **A15**.

Regarding claim 3, the fourth surface **15** on the fastener **11** extends at the first angle **A23** relative to the central axis **A15** when the fastener **11** is secured to the second end portion **7** of the stud **10**.

Regarding claim 4, the third surface **12** extends at a 45-degree angle to the central axis **A15**.

(10) Response to Argument

35 U.S.C. §112, first paragraph

With respect to the 112, first paragraph, appellant argues that the drawings show that the distance between the distance between the first and second sides 20 and 22 of the second suspension is such that the imaginary lines extend from diametrically opposite portions of the first and second frustoconical surfaces intersect within the through-hole. In response, appellant should note that the drawings do not show any imaginary lines. The specification does not even mention the term "imaginary lines". Appellant cannot rely on the drawings being to scale. The specification is silent as to the drawings being to scale. Appellant argues that the drawings are to scale and yet, the appellant fails to indicate where such support is provided in the drawings or the specification. Appellant has provided an engineering drawing as evidence. However, the dimensions given on the engineering drawing are not part of the original specification and also cannot be relied upon. Further, no relationship between the thickness of the plate and the angle of the frustoconical surfaces exists such that the thickness places these imaginary lines intersecting within the through hole is provided in the written description. Accordingly, when the second suspension is small, the imaginary lines will intersect outside the through hole. Therefore, the disclosure, as filed, does not support these features and in particular the relationship between the thickness of the plate and the imaginary lines intersecting within the through hole.

Furthermore, when the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. See *Hockerson-Halberstadt, Inc. v. Avia Group Int'l*, 222

F.3d 951, 956, 55 USPQ2d 1487, 1491 (Fed. Cir. 2000) (The disclosure gave no indication that the drawings were drawn to scale. It is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue. *Merck & Co. Inc. v. Biocraft Laboratories Inc.*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989).

Claim 1

At the outset, appellant is reminded that obviousness is determined from what the combined teachings would have suggested to one skilled in the art at the time the invention was made. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

With respect to the rejection of claim 1, appellant argues that Stroh, Sommerer, and Greubel et al. fail to teach “the first frustoconical surface is angled so that imaginary lines extending from diametrically opposite portions of the first frustoconical surface intersect at a first location within the through-hole and between the first and second side surfaces of the second suspension member” and “the second frustoconical surface is angled so that imaginary lines extending from diametrically opposite portions of the second frustoconical surface intersect at a second location within the through-hole and between the first and second side surfaces of the second suspension member”. In

response, appellant should note that Greubel et al. provides the link between using a frustoconical surface instead of a spherical surface as taught by Stroh (see Greubel et al., col. 3, line 61 - col. 4, line 10). Given the teaching of Greubel et al., the claimed invention is obvious over the combined teachings of these references.

Appellant argues that Sommerer teaches the angles such that imaginary lines extend from diametrically opposite portions of the frustoconical surface intersect at a location outside of the through-hole. Appellant is reminded that Sommerer is only used to show the missing link of alternatively using a frustoconical surface rather than using spherical surfaces to mate. Given, these known teachings, the substitution of frustoconical surfaces instead of spherical surfaces to mate would have been an obvious matter of superiority. Appellant even admits, on page 20, lines 2-5 of the Appeal Brief, that one skilled in the art will use frustoconical surfaces because they are superior for alignment over spherical surfaces. Given this, there is no doubt that the motivation is to substitute over the inferior shape, i.e., the spherical mating surfaces.

Appellant further argues that the references fail to teach a one-piece stud having a second end portion with a third frustoconical surface as recited in claim 1. In response, first, it is evident that the stud 10 in Stroh imparts a one-piece stud. The fact that Stroh fails to teach frustoconical surfaces does not refute that the teachings of Sommerer and Greubel et al. will suggest to one of ordinary skill in the art that it is the combined teachings that suggest that the one-piece stud of Stroh can be modified to

include frustoconical surfaces because the surfaces are superior over spherical surfaces.

Appellant further argues that Sommerer has a deficiency and tackles the reference by indicating that "the imaginary lines extend from diametrically opposite portions of the frustoconical surface intersect at a location within the through-hole and between the first and second side surfaces". The argument that Sommerer fails to teach this feature is irrelevant as the teachings of Sommerer modify the features of Stroh, and thus Stroh, in combination with Sommerer, will suggest to one skilled in the art to modify the spherical surfaces into frustoconical surfaces.

Appellant further argues that Greubel et al. also has a deficiency. In response, appellant should note that Greubel et al. is only used to provide evidence in replacing spherical surfaces over frustoconical surfaces. Since frustoconical surfaces are superior, as appellant has consented on page 20, lines 2-5, it would have been obvious to those skilled in the art at the time the invention was made to use frustoconical surfaces or spherical surfaces as taught by Greubel et al. Appellant argues that Greubel et al. fails to disclose a stud having a frustoconical surface. In response, this statement is incorrect as Greubel et al. teaches, in Figure 2, a stud 16 having a frustoconical surface 19.

Appellant further argues that there is no teaching or suggestion in the references to modify the embodiment of Figure 3 of Stroh to include frustoconical surfaces. In response, appellant should note that those skilled in the art would recognize a need to make a superior mating using frustoconical surfaces over spherical surfaces. Thus, motivation exists to replace the inferior spherical surfaces to frustoconical surfaces.

Appellant further argues that the diameter of Stroh requires the diameter of the recess 13 at the upper surface of the tie rod linkage to be slightly larger than the diameter of the shank portion. In response, appellant should note that the claim does not require "a recess not being larger than that of the shank portion" and the rejection is made irrespective of any size of the recess because the claim only requires frustoconical surfaces.

Claim 5

With respect to claim 5, appellant argued that the record is devoid of a stud having a threaded end portion that extend to a shoulder forming an end of a frustoconical surface of the stud. In response, appellant should note that Stroh teaches this feature. According to Stroh, Figure 3 teaches the threaded end portion extending to a shoulder forming an end of the frustoconical surface of the stud. See rejection for details.

Claim 6

With respect to claim 6, the response to arguments presented to claims 1 and 5, also apply to claim 6.

Claim 7

With respect to claim 7, appellant argue that combining the teachings of Stroh, Sommerer, and Greubel et al. to meet this feature of claim 7 only seems plausible using hindsight after having the benefit of the appellant's disclosure. In response, appellant should recognize that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning, but so long as the teaching takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the appellant's disclosure, such a reconstruction is proper. *In re McLaughlin*, 443 F.2d 1392; 170 USPQ 209 (CCPA 1971).

Claims 8-12

With respect to claims 8-12, appellant argues that Stroh, Sommerer, and Greubel et al. do not teach the features of claims 8-12. In response, appellant needs to review the rejection of claims 8-12 as the combined teachings of the references suggest the features of claims 8-12.

Claims 2 and 3

With respect to claim 2, the response to arguments presented to claim 1, also apply to claim 6. Further, appellant argues that Stroh, Sommerer, and Greubel et al. do not teach the features of claims 2 and 3. In response, appellant needs to review the rejection of claims 8-12 as the combined teachings of the references suggest the features of claims 2 and 3.

Claim 4

With respect to claim 4, it is not inventive to discover optimum or workable ranges by routine experimentation, where the general conditions of a claim is disclosed and a person skilled in the art would have a "reasonable expectation" that the beneficial result will be achieved. Figure 2 in Sommerer and Greubel et al. would reasonably teach one of ordinary skill in the art making a frustoconical surface of 45 degree. Further, appellant has not placed emphasis on the criticality for making the angle 45 degrees. Appellant states on page 4, lines 20-21, and on page 5, lines 6-7, of the specification that the angles could be different. Therefore, the 45-degree angle is not essential as the angle can be any amount.

Claim 9

With respect to claim 9, Pazdirek et al., teach the features of claim 9 and therefore, it would have been obvious to include "a terminal end having a hexagonal configuration" at the second end portion of the stud.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Ernesto Garcia

E.G.



Conferees:

Daniel P. Stodola *DPS*

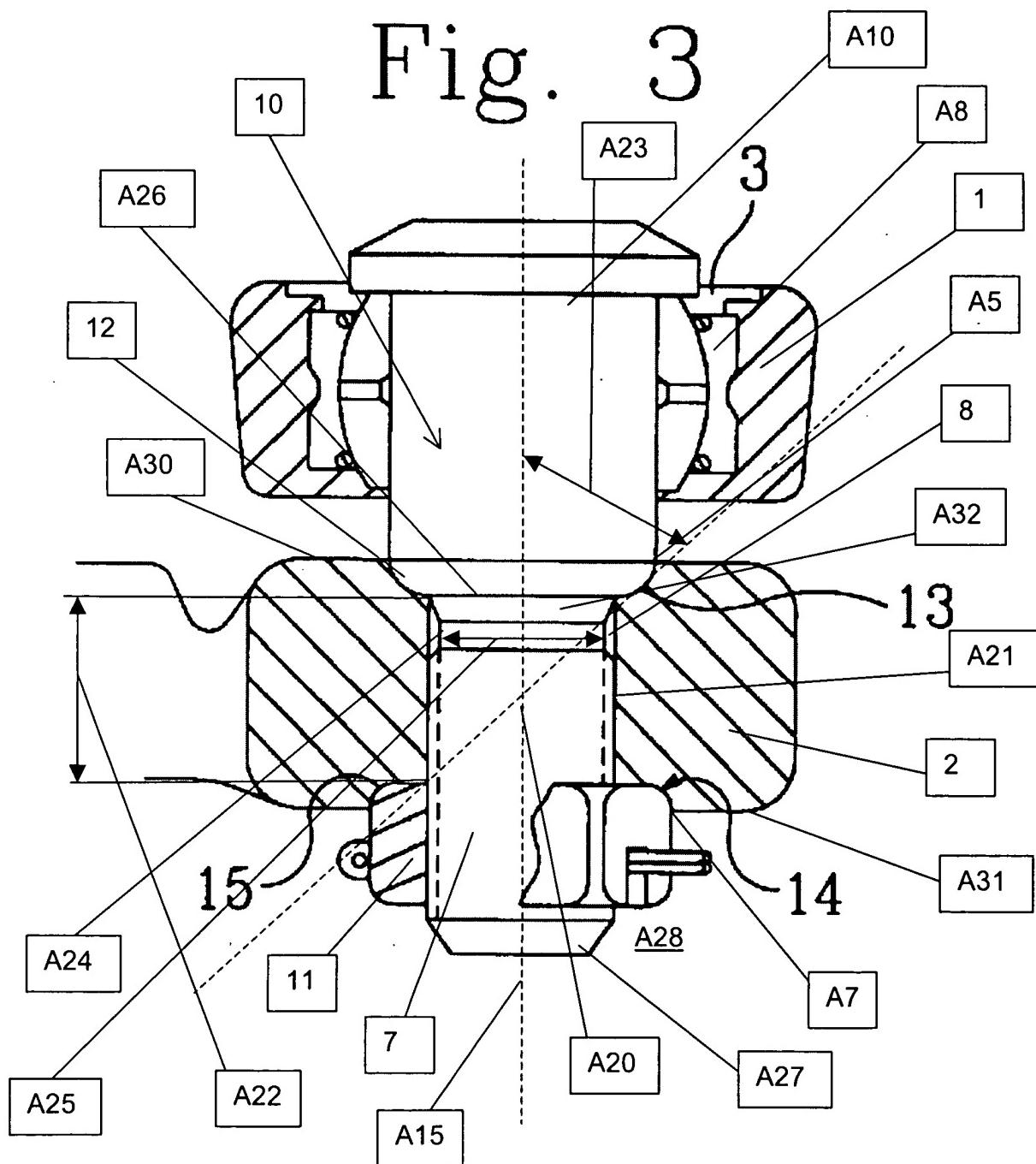
DANIEL P. STODOLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

Darnell M. Jayne *AJW*

Attachments: one marked-up page of Stroh, 6,257,795.
one marked-up page of Sommerer, 5,062,655.

(Stroh) 6,257,795

Fig. 3



5,062,655 (Sommerer)

